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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/567,029	02/03/2006	Hartmut Hibst	284810US0PCT	9923

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EXAMINER	
PATEL, SMITA S	
ART UNIT	PAPER NUMBER
1793	

NOTIFICATION DATE	DELIVERY MODE
05/26/2010	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary	Application No.	Applicant(s)	
	10/567,029	HIBST ET AL.	
	Examiner	Art Unit	
	SMITA PATEL	1793	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *16 February 2010*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *7,8 and 10-27* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *7,8 and 10-27* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

1. Applicant's amendment filed on February 16, 2010 has been entered.

2. Claim 7-8 and 10-27 are under examination.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

3. **Claims 7, 8 and 10-27** are rejected under 35 U.S.C. 103(a) as being obvious over by Ushikubo et al (EP O603836 A1) in view of Lugmair et al (US PGPUB No.: 2004/0110636), in view of Sun et al (US Patent No.: 6689613) and in further view of Schunk et al (US PGPUB No.: 20010039330 A1).

As per Claims 7 and 11-12, Ushikubo teaches a process for preparing the solution containing essential elements for the catalyst is not particularly limited and it may be such that prescribed amounts of starting materials corresponding to the composition of the desired complex oxide are mixed with a solvent such as water. So long as the mixture forms a uniform solution (considered homogenously mixture). Solution or slurry is dried by spray drying method or freeze –drying method (page 3, lines 37-58) Solid particles are obtained by spray drying (page 4 lines 8-9). Ushikubo does teach

metering and drying but does not expressively define continuously metering and drying to obtain solids and changing ratios as defined in step d.

Lugmair teaches that four or more catalyst materials are simultaneously synthesized on substrate by known technique including solvent evaporation, precipitation, sol-gel, spray drying, etc. to make a combinatorial library (paragraph 0052). Lugmair does not teach process of sequential synthesis and changing rations as defined in step d.

Sun teaches combinatorial process used for synthesizing catalyst carbon fibril formation include thin film catalyst library and powder catalyst library. Library used here refers to two or more different powder catalyst placed on a substrate and may be deposited on the substrate sequentially or simultaneously. Further Sun teaches alternative process for creating catalyst library is through the use of multiple channel liquid dispensing system to dispense a liquid material. Once the soluble precursor or combination of soluble precursors comprising elemental metal, metal alloy or combination thereof is deposited on the substrate as a liquid, typically dried and calcined in air. (Col.2 lines 10-15, Col.3 lines 11-25). Sun does not teach changing ratios as defined in step d

Schunk teaches a process for preparing arrays of heterogeneous catalysts and/or their precursors through channels and in which at least n channels comprise n different heterogeneous catalyst and/or their precursors, where n is 2, preferably 10 or more, more preferably 10,000 or more comprising following steps:

a) preparing of mixtures of different chemical compositions or plurality of mixtures of the same composition solutions, emulsions and/or dispersions of elements and/or elements compounds of chemical elements present in the catalysts

b) mixing predetermined amounts of the solutions, emulsions and/or dispersions in one or more reaction vessels run in parallel mixing can be metered using automated pipettes or an inkjet unit (paragraphs 0031, 0088 and 0099).

Schunk does not expressively mention changing the ratios in step b and repeating step b, c and D until n different solids are obtained but it would have been obvious to achieve that since Schunk teaches process for making library of catalysts on a substrate either a plurality of reaction vessels can be operated in parallel (simultaneous deposition) or one reaction vessel, after partial emptying, can be refilled with other components to achieve an altered composition. When single reaction vessel is refilled with other components to achieve an altered composition can be applied as changing the ratios and then repeating metering and drying steps.

It would have been obvious to one of the ordinary skill in the art at the time of invention to combine the process of Ushikubo with Lugmair et al, Sun et al and Schunk to provide all the necessary steps to make the sequential production of library of N different solids by spray drying or freeze drying to discover heterogeneous catalysts compared to conventional methods and may be orders of magnitude faster as taught by Sun. Based on the teachings of the references, sequentially forming a plurality of catalysts by continuously metering solutions into a mixer and spray drying or freeze drying to form a catalyst powder then changing the ratio of the solutions metered to the mixer for making a different catalyst powder to form a catalyst library would have been obvious to one of ordinary skill in the art because the references suggest that sequential formation of

catalyst using a single vessel is known in the art as an alternative to simultaneous formation of catalyst to form a library.

As per Claim 8, Ushikubo does mention that as long as the mixture forms a uniform solution or slurry, it unnecessary to heat it or conduct stirring for long period of time so it would have been obvious to conduct the mixing and drying less than 10 minutes to improve the yield of nitrile using specific crystal structure as taught by Ushikubo (page 3 lines 43-45).

As per Claims 10 and 18, Ushikubo teaches process wherein the different solids are produced in each case in amounts from 0.1 to 500 g (see examples).

As per Claims 13-17 Schunk teaches wherein N is 2 or more, preferably 10 or more, 100 or more, 1000 or more or even 10,000 or more (encompasses claimed range, paragraph 0088).

As per Claims 19-20, Ushikubo teaches catalyst constitutes from 10 to 60 wt% of at least two different solutions (examples, page 3 lines 50-53, overlap claimed range).

As per Claims 21-22, Ushikubo teaches unique element comprising of ammonium metavanadate (page 3 lines 47-48).

As per Claims 21-27, Schunk teaches unique element comprising salts of organic or inorganic and active metal is in subgroups 5 and 6 and in platinum (paragraph 0091, platinum is considered transition metal).

Response to Amendment

Applicant has filed an amendment but has not amended any claims. See new ground of rejection above and therefore, the applicant's arguments, filed on 02/16/2010, are moot in view of the new ground(s) of rejection.

Regarding to applicant argument for related to prior art taught by Schunk et al, Examiner added new cited prior art taught by Sun and Lugmair. Further, applicant's disclosure on page 10, applicant mention to clean the system between the two catalyst production operations means that it is not continuous process and use of single vessel since system is being stopped in between for cleaning. Sun teaches that powder or liquid catalyst can be deposited on substrate sequentially or simultaneously. Therefore in this case, the combination of Schunk, Sun, Lugmair and Ushikubo teaches claimed limitation. In addition, concept of using single vessel is known which is support by Nelson t(US PGPUB No.: 2003/0035756 A1)- the system having at least one plug flow reactor introducing one or more components into the plug flow reactor and evaluating the materials for library so it would have been obvious that one or more components can be introduced into multiple reactors and testing each solid for desired catalytic property so that libraries formed wit this system can have members with masses greater than member made in confined volumes, e.g., to the size of microtitre plates, and can be made at higher process rates.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to SMITA PATEL whose telephone number is (571)270-5837. The examiner can normally be reached on Monday-Thursday, 8:00-5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Melvin Curtis Mayes can be reached on 571-272-1234. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

SP AU1793
05/21/2010

/Melvin Curtis Mayes/
Supervisory Patent Examiner, Art Unit 1793